

**BEFORE THE
UNITED STATES TRADE REPRESENTATIVE
WASHINGTON, D.C.**

PUBLIC DOCUMENT

CERTAIN STEEL PRODUCTS

Carbon and Alloy Flat Products - Plate

**WRITTEN COMMENTS OF
SSAB OXELOSUND AB**

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I. Introduction

SSAB Oxelosund AB (“SSAB”) has requested the exclusion of nine specific quenched and tempered abrasion resistant, high yield, and armor products from Section 201 relief. These are low-volume, high-cost niche products that are not produced domestically. In support of its requests, SSAB has provided detailed product specification sheets describing the products for which it seeks exclusion, stated which grades and/or dimensions of these products are not produced domestically, and submitted statements from its customers explaining why the grades and/or dimensions that are produced domestically are not adequate substitutes for SSAB’s products. In response, the domestic industry only states vaguely that it produces products comparable to those for which SSAB seeks exclusion. The domestic industry has not submitted any product specification sheets showing that any of the contentions made by SSAB regarding the limitations in domestic product range are incorrect, and it has not offered any statements from its customers refuting the statements made by SSAB customers that the domestic products are generally unavailable and not of high enough quality for use in many of their applications. The position of the domestic industry seems to be that, because it produces a small quantity of an extremely limited range of inferior abrasion resistant, high yield and armor plate products, domestic consumers should be unable to obtain any of these products without paying substantial tariffs, regardless of the grade, size or quality of the products. The President should not accept this position due to the negative effects that inclusion of SSAB products in Section 201 relief would have on domestic steel consuming industries.

Merely producing some abrasion resistant, high strength or armor plate products is a relatively simple task. Producing commercially viable quantities of a full range of these products that meet the stringent quality standards set by heavy equipment manufacturers and their

customers, however, is a much more difficult and complicated undertaking. While the domestic industry has done the former, it has failed (if it has made any effort at all) to accomplish the latter. Merely producing some of these products should not allow the domestic industry to restrict access to the market of a broad range of plate products that it cannot substitute. SSAB has done the latter, and importation of its products has allowed its customers to compete effectively in a global market.

SSAB seeks the exclusion of its full range of quenched and tempered abrasion resistant, high yield and armor plate products because, as stated herein, in SSAB's previous submission, and in numerous submissions of SSAB customers, these products are fundamentally different from domestic alternatives. If, however, the President does not agree to exclude all such products, SSAB seeks the exclusion of certain grades, and certain dimensions of the remaining grades, of these products because these grades and dimensions are not produced domestically.¹

II. SSAB Abrasion Resistant, High Yield And Armor Plate Products Are Fundamentally Different From Domestic Products

Although certain grades are produced in limited dimensions by the domestic industry, all abrasion resistant plate with Brinell hardness of 400 HB or higher and structural steel plate with yield strength of 100 ksi or greater should be excluded from Section 201 relief because SSAB products are fundamentally different from domestic alternatives. All SSAB products at issue are surface treated with a low zinc silicate primer, formatted with a square edge, and free of scale. Further, SSAB products are guaranteed to thickness tolerances of 1/3 ASTM standards and

¹ SSAB's statements regarding the limitations in domestic product range are derived from the publicly available product descriptions and specification sheets offered by the domestic industry. Relevant materials from those companies claiming to produce competitive products are attached as Exhibit 1.

flatness tolerances of 4 mm/m or better. No domestic products can meet all of these standards.

An exclusion can, and should, be drawn based on these characteristics because the abrasion resistant and structural plate products sold by domestic producers are simply different products from those imported by SSAB.

The importance to SSAB customers of the quality differences described above has been stated several times in the submissions of SSAB customers. These are not merely meaningless preferences of certain customers, but vital requirements that determine whether or not the end product is suitable for its intended use. At least four SSAB customers have submitted statements in this regard to the United States Trade Representative. These companies are loyal consumers of domestic steel, but they are willing to pay a premium for the limited quantities of quenched and tempered products that they purchase from SSAB. For the convenience of the Trade Policy Staff Committee (the "Committee"), these submissions are attached as Exhibits 2 through 5.

While the domestic industry vaguely stated that it produces products comparable to SSAB products, it has not refuted any of the statements made by purchasers of SSAB products regarding the lack of substitutability among these products. The steel consumers that have made submissions to the Committee are the parties who are in the best position possible to evaluate which products are available in the market, and they have unanimously concluded that suitable alternatives for SSAB quenched and tempered abrasion resistant, high yield, and armor products are not available from domestic producers. It is important to note that the SSAB customers who submitted letters supporting exclusion are not motivated by a lower price. These companies purchase SSAB products, and wish to continue purchasing SSAB products, despite the high price of these products.

These companies are loyal consumers of domestic steel, and, if the less expensive domestic quenched and tempered products met their needs and the needs of their customers, they would undoubtedly purchase those products. They have taken the time to urge the Committee to allow them continued access to higher priced imports from SSAB, however, because they have no choice but to use SSAB products. Indeed, several of them believe that inclusion of SSAB products in Section 201 relief will force them to go out of business because relief would grant their foreign competitors an insurmountable advantage. Great weight should be given to the statements of these companies, for they stand to be affected most dramatically by the Committee's recommendation to the President. The general statement by the domestic industry that it produces comparable products is of little comfort to the manufacturer who is forced to replace a 40-ton piece of machinery because its customer is of the opinion that the domestic abrasion resistant steel used in its manufacture "looked used."²

III. Grades And Dimensions That Are Not Available From Domestic Producers

A. Grades That Are Not Produced Domestically

The following grades of abrasion resistant and high yield structural steel are not produced, in any dimensions, by the domestic steel industry:

1. 600 HB Abrasion Resistant Plate;
2. 160 ksi Structural Steel Plate;
3. 140 ksi Structural Steel Plate; and
4. 360 HB - 600 HB Armor Plate.

In the event that the Committee does not recommend exclusion of all quenched and tempered products that are the subject of this letter, SSAB respectfully requests that the

² See Submission of Manitowoc Cranes, Inc., November 13, 2001.

Committee recommend exclusion of these products. Their lack of availability from domestic sources is confirmed by publicly available product lists of domestic producers.³

B. Dimensions of Remaining Grades That Are Not Produced Domestically

With respect to the remaining five product grades, the domestic industry is unable to roll the plates in a complete range of product dimensions. In each grade, SSAB imports plates that are, depending on the needs of the customer, thinner, thicker, and/or wider than those available domestically. The chart below addresses each grade:

<u>Grade</u>	<u>SSAB Thickness Range</u>	<u>Domestic Thickness Range</u>	<u>SSAB Maximum Width</u>	<u>Domestic Maximum Width</u>	<u>SSAB Dimensions Unavailable Domestically</u>
500 HB Abrasion Resistant Plate	1/8" - 3 1/8"	3/16" - 1"	132"	96"	1/8" thickness >1" and ≤3 1/8" thickness >96" and ≤132" width
450 HB Abrasion Resistant Plate	1/8" - 5 1/8"	3/16" - 2"	132"	96"	1/8" thickness >2" and ≤5 1/8" thickness >96" and ≤132" width
400 HB Abrasion Resistant Plate	1/8" - 5 1/8"	3/16" - 3"	132"	96"	1/8" thickness >3" and ≤5 1/8" thickness >96" and ≤132" width

³ See Exhibit 1.

130 ksi Structural Steel Plate	1/8" - 4"	3/16" - 2"	132"	96"	1/8" thickness >2" and ≤4" thickness >96" and ≤132" width
WASHINGTON 265085v1					

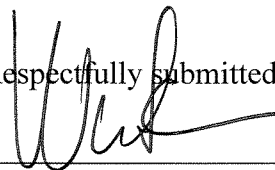
100 ksi Structural Steel Plate	1/8" - 5 1/8"	3/16" - 2 1/2"	132"	96"	1/8" thickness >2 1/2" and ≤5 1/8" >96" and ≤132" width
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In the event that the Committee does not recommend exclusion of all quenched and tempered products that are the subject of this letter, SSAB respectfully requests that the Committee recommend exclusion of the dimensions of each grade that are listed in the column furthest to the right in the chart above. The lack of availability of these dimensions from domestic sources is confirmed by publicly available product lists of domestic producers.⁴

IV. Conclusion

For the reasons stated herein, quenched and tempered abrasion resistant, high yield, and armor plate products imported by SSAB should be excluded from Section 201 relief.

Respectfully submitted,



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⁴ See Exhibit 1.

TABLE OF EXHIBITS

Exhibit 1	Bethlehem Steel Lukens Plate Product Specifications
Exhibit 2	Letter from Peter R. Burish, Manitowoc Cranes, to Ambassador Robert B. Zoellick
Exhibit 3	Letter from Kenneth R. LaBounty, Genesis Equipment & Manufacturing, Inc., to Ambassador Robert B. Zoellick, November 13, 2001
Exhibit 4	Letter from Thomas J. Edwards, A.J. Weller Corporation, to James R. Simoes, November 7, 2001
Exhibit 5	Letter from Rick Reynolds, WESTECH, Inc., to Robert Zoellick, December 19, 2001

EXHIBIT 1

Bethlehem Lukens Plate LQ-130

Product Development Information as of June 4, 2001

LQ-130 is a quenched and tempered, 130 ksi minimum yield strength, general structural plate product currently available to 2 in. thick. (Refer thicker plates to Bethlehem Lukens Plate (BLP)).

Composition (maximums unless a range is shown)

C	Mn	P	S**	Si	Mo	Cr	Ni	V	Cb	B
0.12/ 0.18	1.55	0.025	0.003	0.15/ 0.55	0.55	0.65	1.00	0.08	0.04	0.005

** Includes Fineline® calcium treatment for inclusion shape control

Tensile Properties

Yield Strength Minimum	130 ksi
Ultimate Tensile Strength	For information only
Elongation Minimum	12%

Charpy V-Notch Impact Properties

Longitudinal @ -40°F Minimum Average	25 ft-lbs.
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Size Availability +

	Width	Length
3/16 to 1/2 in. incl.	To 96 in.	To 500 in.
Over 1/2 to 2 in. incl.	To 126 in.	To 580 in.

+ refer other sizes to BLP

Flatness

This product will be supplied to 1/2 the permissible variation in the ASTM A6 Table A1.14 for high strength steels.

Welding Guidelines

LQ-130 may be welded using any conventional welding process provided low hydrogen welding practice is followed (weld metal diffusible hydrogen level ≤ 5 ml/100g, ≤ 3 ml/100g preferred). All weld edges should be clean and free from rust, oil, grease, etc. with proper joint fit-up. Specific recommendations are as follows:

Thermal Limitations

Suggested maximum heat input

Section Thickness Range		Welding Process	
(in)	(mm)	SMAW	GMAW/FCAW
3/8 – 5/8	9.5 – 15.9	40 kJ/in	35 kJ/in
5/8 – 7/8	15.9 – 22.2	45 kJ/in	40 kJ/in
7/8 – 1-3/8	22.2 – 34.9	45 kJ/in	45 kJ/in
1-3/8 - 4	34.9 - 101	50 kJ/in	50 kJ/in

Preheat/interpass temperature

Measure preheat/interpass temperature approximately 3" from the joint face.

Use minimum preheat temperature of 68°F (20°C). Increase by 45°F (25°C) with high atmospheric humidity, low ambient temperatures ($< 40^\circ\text{F}/5^\circ\text{C}$), or high joint restraint.

This product is still under development as of this date. The data is subject to change.

Bethlehem
Bethlehem Lukens Plate



Recommended maximum interpass temperature

Section Thickness Range		Maximum Interpass Temperature	
(in)	(mm)	(°F)	(°C)
≤ 5/8	≤ 15.9	75 - 150	25 - 65
5/8 – 7/8	15.9 -22.2	125 - 200	50 - 95
7/8 – 1-3/8	22.2 – 34.9	200 - 275	95 - 135
> 1-3/8	> 34.9	225 - 300	105 - 150

The information given above is based on general welding metallurgy principles, AWS D1.1:2000 (Annex XI, Tables XI-1 and XI-2), and available data on similar steels. It is subject to revision without notice and is intended **only as a starting guideline**.

Consumables

Conservative approach - Use undermatching consumables with the lowest strength electrode permitted by design. Use softer electrodes for the root pass and higher strength electrodes for filler passes.

Weld matched to plate strength - Employ matching consumables although availability of suitable electrodes is limited. This approach carries increased risk of problems with cracking, distortion, and higher residual stresses. Fabricator should be aware that weld metal strength and toughness would vary with consumable supplier and product. Qualification of the joint and process is strongly recommended

	Process/Governing Standard			
	SMAW/ AWS 5.5	SAW/ AWS 5.23	GMAW/ AWS 5.28	FCAW/ AWS 5.29
Consumable	(140 ksi)*	(140 ksi)*	(140 ksi)*	(140 ksi)*
	(130 ksi)*	(130 ksi)*	(130 ksi)*	(130 ksi)*
	E 12018	F12A4-EX	E110S-X	E 12XT-X
	E 11018	F11A4-EX	E100S-X	E 11XT-X
		F10A4-EX		E 10XT-X

Note: * Although consumables delivering tensile strengths exceeding 120 ksi are not generally included in these AWS specifications, some are available. Contact your welding supplier or Bethlehem Lukens Plate for further details.

It is important to note this grade of steel may be susceptible to cracking in the heat-affected zone of welds during post-weld heat treatment (stress relief). Therefore, BLP recommends careful consideration be given to this phenomenon by competent welding engineers before stress relieving is applied to weldments of this grade. Also, it is not recommended for service at temperatures lower than -50°F or higher than 800°F.

Formability

Cold forming should be performed at shop temperatures over +60°F using practices that include grinding of plate edges, conditioning of dies, use of adequate lubrication and applying the load in a smooth, steady manner. Bend punch radius to plate thickness ratio should be greater than 3 for bending perpendicular to the direction of rolling and 4 for bending parallel to the rolling direction for plates up to 0.5 in. thick. Check with BLP for guidelines on thicker plate.

This product is still under development as of this date. The data is subject to change.



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Introduction

Bethlehem Lukens Plate (BLP)

Hardwear,[®] a line of premium abrasion-resistant plate steels, is available in two grades – Hardwear 400F and Hardwear 500F – with nominal Brinell hardness of 400HB and 500HB, respectively.

Each grade exhibits an excellent combination of hardness, abrasion resistance, formability, weldability, toughness and flatness to meet fabrication needs and end-use requirements.

Hardwear steels are designed for through-thickness hardness while maintaining minimum carbon, alloy and carbon equivalent contents to improve weldability.

The sulfur content is reduced to a maximum of 0.005% and the steels are calcium treated for inclusion shape control using BLP's Fineline[®] process. These factors enhance the cold forming characteristics of the steels.

Hardwear is available in thicknesses from $\frac{3}{16}$ to 3 inches (4.8 mm to 76 mm) and produced to one-half of the ASTM flatness tolerance in most sizes. Inquire with BLP for current availability.

Composition

Hardwear® steels are designed to have as low a carbon equivalent as possible, consistent with meeting surface and through-thickness hardness requirements.

The chemistry range for each Hardwear grade is shown in Table 1. Figures 1 and 2 show the carbon equivalent results for a representative number of heats of steel produced for plates to 1-inch (25.4 mm) thick in each grade. More restrictive carbon equivalent levels are available for thinner plates.

Because of BLP's ladle refining practices, very precise and reproducible chemistries can be expected from these steels.

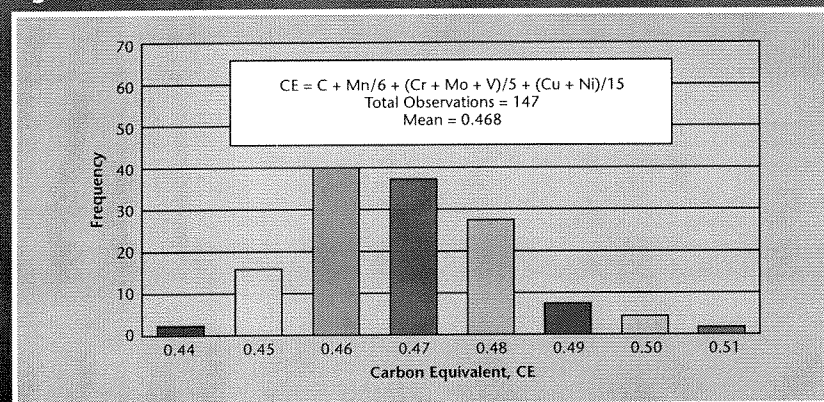
Table 1: Chemistry

Grade	C	Mn (Max.)	P (Max.)	S* (Max.)	Si	Ni (Max.)	Mo (Max.)	Cr (Max.)	B
400F	.12/.16	1.55	.025	.005	.35/.55	1.00	.55	.55	.0005/.005
500F	.25/.31	0.95	.025	.005	.45/.55	1.00	.65	.75	.0005/.005

BLP Premium Hardwear® Steel ($\frac{3}{16}$ " to 3" thick)

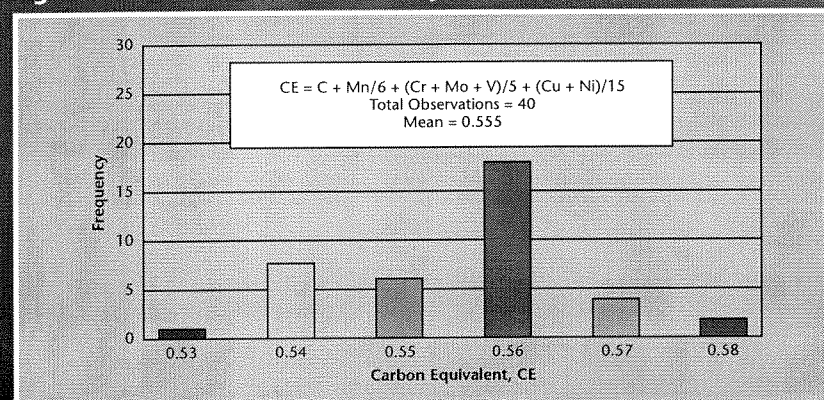
* With calcium treatment for inclusion shape control, Fineline® Double-O-Five

Figure 1: Hardwear® 400F Chemistry Distribution



Carbon Equivalent Distribution for Thicknesses to 1" (25.4 mm)

Figure 2: Hardwear® 500F Chemistry Distribution

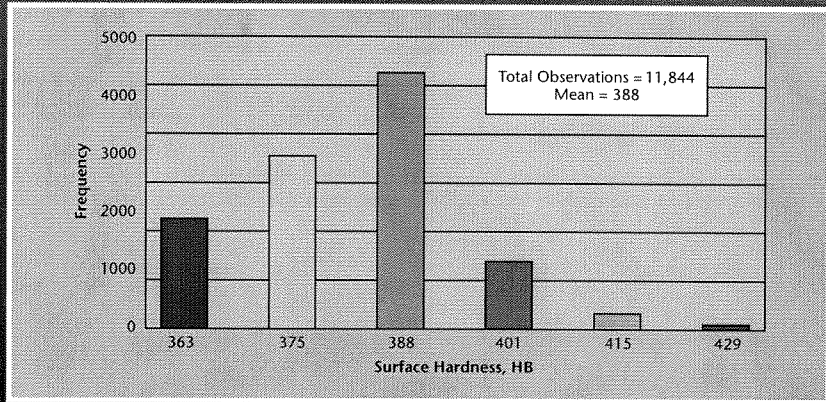


Carbon Equivalent Distribution for Thicknesses to 1" (25.4 mm)

Hardness

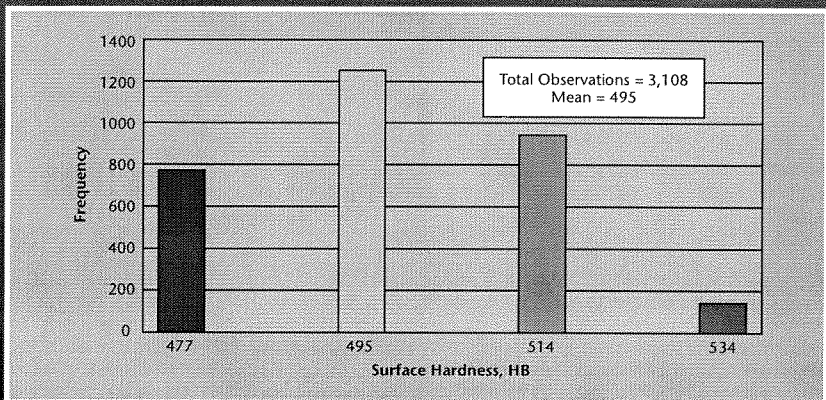
The primary ordering requirement for Hardwear® steels is minimum surface hardness. The hardness distributions of almost 12,000 Hardwear 400F plates and approximately 3,000 Hardwear 500F plates are shown in Figures 3 and 4. The Brinell hardness (HB) range of Hardwear 400F is 360 to 444 HB. For Hardwear 500F, the range of hardness is 460 to 544 HB. Inquire with BLP if more restrictive hardness levels are required.

Figure 3: Hardwear® 400F Hardness Distribution



$\frac{3}{8}$ " to $\frac{3}{4}$ " (9.5–19 mm) Thickness

Figure 4: Hardwear® 500F Hardness Distribution

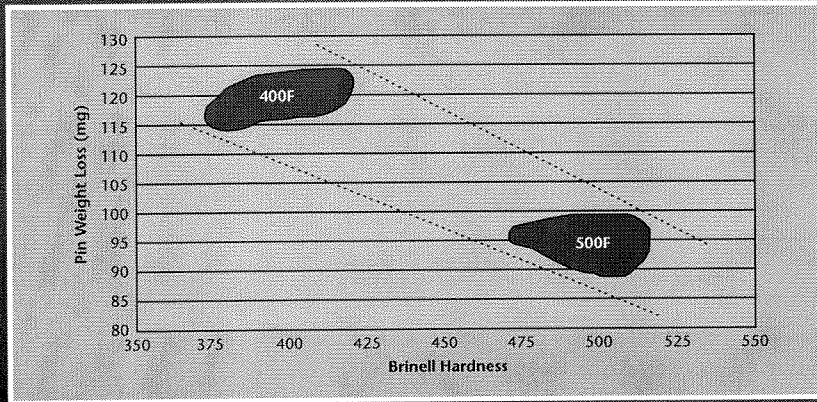


$\frac{3}{8}$ " to $\frac{3}{4}$ " (9.5–19 mm) Thickness

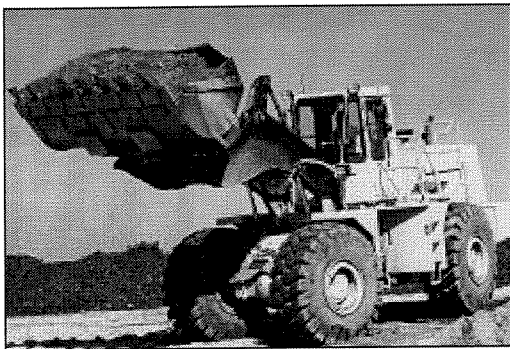
Pin Abrasion

The Pin Abrasion test is used to compare abrasion resistant steels. A standard test pin, machined from the steel to be tested, is abraded by a 150-mesh garnet abrasive cloth under specified laboratory conditions and the pin's weight loss, in milligrams, is measured. The results of testing conducted by BLP, comparing the pin weight loss and corresponding hardness of the Hardwear grades, are shown in Figure 5.

Figure 5: Hardwear® Steels



Pin Abrasion Test vs. Hardness



Hardwear steels exhibit excellent hardness, formability, weldability and toughness. They are designed for use in mining, aggregate and construction equipment—applications where high levels of abrasion and wear resistance are required.

Mechanical Properties

While Hardwear® steels are normally specified using hardness testing, it is of interest to know other mechanical properties of these steels.

Tensile Strength

BLP does not guarantee tensile properties of Hardwear 400F or Hardwear 500F. However, for information purposes, Figures 6 and 7 are presented to show typical yield and tensile strength behavior of these steels as a function of thickness. The transverse values shown approximate those in the longitudinal direction. Furthermore, both steels exhibit fairly consistent strength, independent of thickness.

Please note the tensile specimens used for this study had a 1-inch gauge length. The reported elongation values are greater than those obtained with longer gauge lengths.

Figure 6: Hardwear® 400F—Tensile Strength

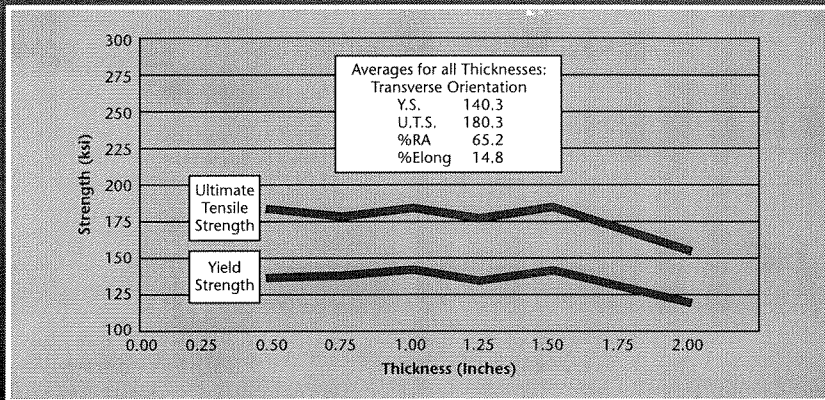
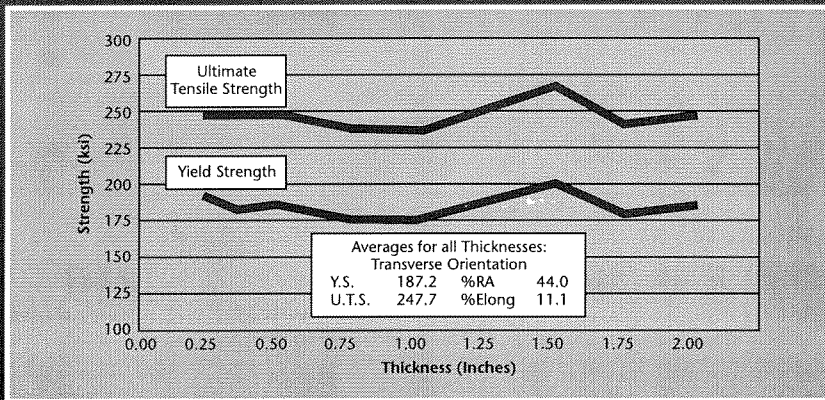


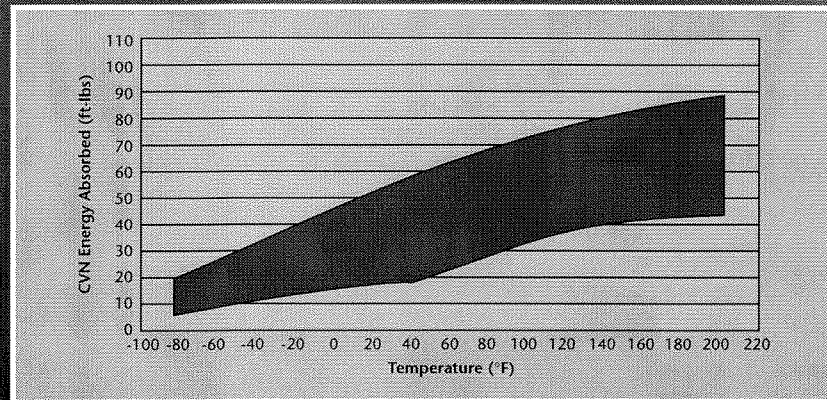
Figure 7: Hardwear® 500F—Tensile Strength



Charpy V-Notch Impact Toughness

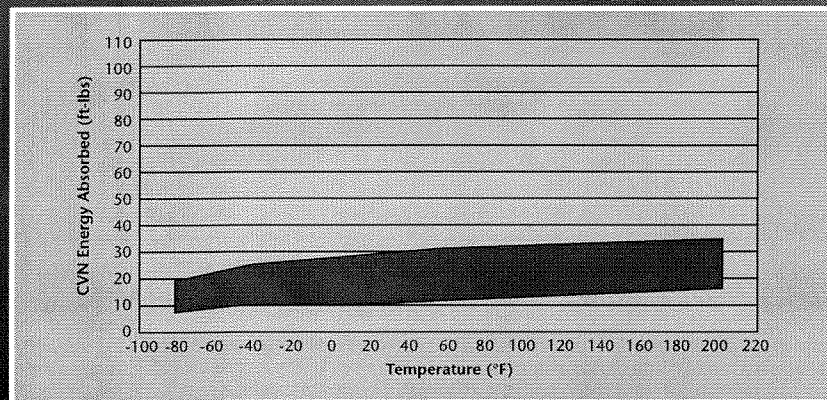
The results of extensive Charpy V-notch impact testing are summarized in Figures 8 and 9. BLP can guarantee impact properties of Hardwear® 400F or Hardwear 500F when specified.

Figure 8: Hardwear® 400F Transverse CVN Toughness



Transverse CVN Toughness, $\frac{7}{16}$ " to 2" Thick Plates

Figure 9: Hardwear® 500F Transverse CVN Toughness



Transverse CVN Toughness, $\frac{7}{16}$ " to 2" Thick Plates

Bend Formability

Hardwear® steels were specifically designed for improved formability. BLP's plane strain bend testing of Hardwear 400F and Hardwear 500F led to the forming guidelines presented in Table 2.

These guidelines are based on forming at typical shop temperatures over +60°F.* We caution that bend forming of these hard steels should be carried out using shop practices which include, but are not limited to, using hardened V-dies with a liberal radius (See Table 2). Also, adequate lubrication, grinding of plate edges and applying the load in a smooth, steady manner are recommended. Particular caution should be used in applying the "bump and move" technique to control the depth and number of bends.

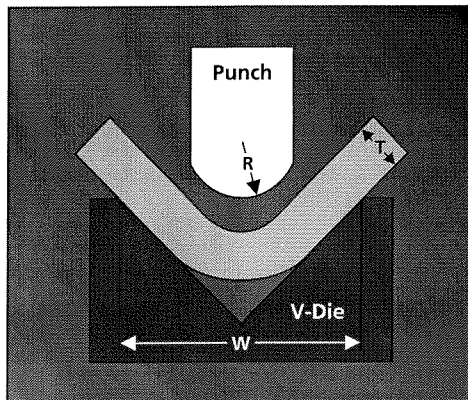
Examples of bends formed from Hardwear 400F plates using the guidelines of Table 2, are shown below.

* Hardwear steels are not intended for hot forming applications, unless reheat treatment of the part is included. Consult BLP for heat treatment guidelines.

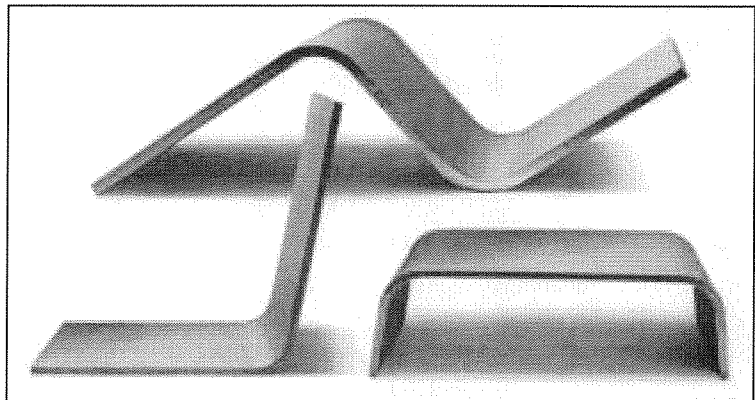
Table 2: BLP Hardwear® 400F and 500F

Grade	Thickness Range*	Severity Ratios for Single Stroke bend			
		Bend Transverse to Rolling Direction		Bend Parallel to Rolling Direction	
		R/t	W/t	R/t	W/t
Hardwear 400F	$\frac{3}{16}$ – $\frac{3}{4}$ inch (4.8–19 mm)	3	13.5	4	14.5
Hardwear 500F	$\frac{3}{16}$ – $\frac{1}{2}$ inch (4.8–13 mm)	6	16	6	16

* Consult BLP for Greater Thicknesses



Punch Bend Forming Severity Ratio - R/t
Punch Bend Forming Severity Ratio - W/t



Examples of bends formed from Hardwear 400F plates.

Bend Load Requirement Formulas (for nominal strength levels)

P = estimated press load, tons
L = length of plate to bend, inches

$$\text{400F} \quad P = (150 \times t^2 \times L) / W$$

$$\text{500F} \quad P = (200 \times t^2 \times L) / W$$

Example: 400F plate 0.5-inch thick by 48-inches wide with a die W of 7 inches
 $P = (150 \times 0.52 \times 48) / 7 = 257$ tons needed for forming

Machinability

Due to their high hardness levels, Hardwear® steels, as all abrasion resistant grades, are inherently more difficult to machine when compared to normal structural steels. Also, the cleanliness, low sulfur and inclusion levels of Hardwear steels influence chip breakage behavior. Therefore, machining these steels requires the use of cobalt-alloyed, high speed steel (HSS) tools or carbide tips, using a generous supply of cutting fluid. In milling operations, the 400F and 500F grades require cutting speeds of 45% and 35%, respectively, of the speeds for milling A572-50. The following parameters have been found effective in the drilling of Hardwear steels (See Table 3).

Table 3: BLP Hardwear® 400F and 500F

Grade	Drill Speed, rpm			
	Cutting Speed, In./Min.	0.4 Inch Dia.*	0.8 Inch Dia.*	1.2 Inch Dia.*
400F	250–450	300	150	100
500F	150–250	130	65	40

* Feed Rate In./Rev. .004, .008, .012 Respectively

Thermal Cutting

BLP's Hardwear® 400F and 500F plates can be thermally cut with conventional oxygen-fuel and plasma-cutting techniques. The minimum plate temperature prior to thermal cutting should be +60°F for both grades. It is further recommended that Hardwear 500F plates greater than 1-inch (25.4 mm) thick be preheated to +300°F to prevent edge cracking. Use of reduced cutting speeds with other proper cutting parameters may also be used for thicker plates. Refer to BLP Technical Services Bulletin *Thermal Cutting of BLP Steels* for further information.

Weldability

BLP's Hardwear® 400F and 500F steels may be welded by any of the conventional welding processes such as SMAW, GMAW and SAW, provided proper precautions and low-hydrogen welding practices are employed. BLP's welding guidelines for Hardwear 400F and 500F are summarized in Tables 4A and 4B shown below and on the following page. The guidelines were developed using the "Y" groove weldability test specimen. For joints under less restrained conditions, some fabricators have found lower preheat temperatures may be used. Postweld heat treatment should not be applied to the steels if the original hardness levels are to be maintained.

Table 4A: Welding Preheat Guide for BLP's Hardwear® Plate

Combined Plate Thickness: T1 + T2 + T3	Recommended Minimum Preheat (°F)								
	Hardwear 400F Heat Input (KJ/Inch)					Hardwear 500F Heat Input (KJ/Inch)			
	30	35	40	45	>45	30	35	40	45
$\frac{3}{4}$ Inch	60	60	60	60	60	200	200	200	200
1	60	60	60	60	60	250	200	200	200
1 $\frac{1}{4}$	60	60	60	60	60	300	250	200	200
1 $\frac{1}{2}$	60	60	60	60	60	350	300	250	200
2	60	60	60	60	60	400	350	300	300
2 $\frac{1}{2}$	60	60	60	60	60	400	350	300	300
3	200	200	200	60	60	400	400	350	350
4	250	250	250	200	200	400	400	400	400

Notes:

- Both tables must be consulted and the higher preheat value used.
- Preheat temperature based on SMAW process and E7018 electrode.
- E7018 electrodes must be stored in an oven at $250^{\circ}\text{F} \pm 25^{\circ}\text{F}$.
Maximum exposure — four hours out of the can or out of the oven.
- Preheat minimum temperature may be reduced by 50°F (but not less than 50°F) using GMAW process, ER70S-3 electrode and AR- CO_2 gas.
- Maximum preheat should be 400°F to retain hardness properties.
- 35 KJ/inch represents approximately a $\frac{1}{4}$ -inch fillet weld (SMAW).

If L is less than or equal to $\frac{1}{2}$ T2, consider T2 = 0.

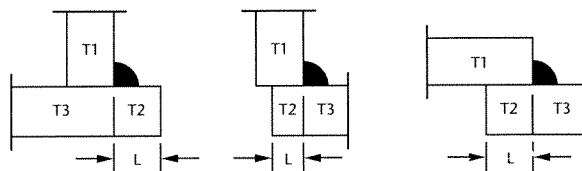


Table 4B: Welding Preheat Guide for BLP's Hardwear® Plate

Individual Plate Thickness:	Recommended Minimum Preheat (°F)									
	Hardwear 400F Heat Input (KJ/Inch)					Hardwear 500F Heat Input (KJ/Inch)				
	30	35	40	45	>45	30	35	40	45	
1/2 Inch	60	60	60	60	60	200	200	200	200	
5/8	60	60	60	60	60	250	200	200	200	
3/4	60	60	60	60	60	300	250	200	200	
1	60	60	60	60	60	350	300	250	200	
1 1/4	60	60	60	60	60	400	300	250	200	
1 1/2	60	60	60	60	60	400	350	300	250	
2	200	200	200	200	200	400	400	350	300	

Applications

Hardwear® plate steels are used in the original fabrication and repair of heavy equipment subject to severe abrasion wear.

Their use is especially effective where formed transitions are preferred over welded joints for flowability in material handling equipment used in the mining, aggregate, pulp and paper, and construction industries.

Hardwear's improved weldability enhances its attractiveness where field welding is often performed.

Applications such as liners for truck beds, buckets, hoppers, chutes, crushers and conveyor troughs are among the most common. Concrete mixer drums, trash truck bottoms and bucket lips are among other applications.



Graders, bucket lips, truck beds and other heavy equipment components exposed to severe abrasion are ideal applications for Hardwear steels.

Availability

BLP Hardwear® plate steels are available from steel service centers nationwide.
Please call BLP at 1-800-213-7627 for the names of stocking service centers.

Additional Information

1. Bethlehem Lukens Plate Bulletin, for *Fineline® Steels*
2. Bethlehem Lukens Plate Bulletin, *Thermal Cutting of Plate Steels*

IMPORTANT: The information provided herein is based on testing or Bethlehem Lukens Plate's experience and is accurate and realistic to the best of our knowledge at the time of publication. However, characteristics described or implied may not apply in all situations. Bethlehem Lukens Plate reserves the right to make changes in practices that may render some information outdated or obsolete. In cases where specific plate properties are desired, Bethlehem Lukens Plate should be consulted for current information and/or capabilities.

Mill Locations

Burns Harbor, IN
Coatesville, PA
Conshohocken, PA

Headquarters

Bethlehem Lukens Plate
Administrative Resources Center
Modena Road • P.O. Box 3001
Coatesville, PA 19320-0911
1-800-213-7627
www.bethsteel.com



EXHIBIT 2

Manitowoc Cranes, Inc.
2401 S. 30th Street
Manitowoc, Wis. 54220

Ambassador Robert B. Zoellick
United States Trade Representative
600 17th Street, N.W
Washington, DC 20508

Mr. Ambassador,

MANITOWOC CRANES is an industry leader in the manufacture of lattice-boom crawler mounted lift cranes. Our primary competition is based offshore and naturally obtains the steel required to produce their cranes from steel mills outside the U.S. Their cranes have, until recently, offered a superior finish quality as compared to MANITOWOC CRANES. This was brought to our attention at international expositions and by our customers who also buy from other crane manufacturers.

MANITOWOC CRANES overall product quality was being called into question due to the inferior surface quality of domestically produced alloy steel plate resulting in a less than satisfactory appearance after painting. There have been instances where a segment of a crane was rejected by a customer at the time of delivery due to an unacceptable appearance. One example is the time we had shipped a 275 ton capacity machine to a customer in Texas who, upon taking delivery of the machine, looked at the mast assembly on top of the machine and promptly had it removed from the crane and returned to Manitowoc for replacement. The poor surface quality of the 3/8" A-514 material that was employed in the fabrication of this component resulted in an appearance that, in the customers mind, made him think that we had used "old, used steel". A similar situation occurred with a machine that we recently shipped to a customer in Singapore. In this case the weldment called into question was the boom top of the crane. The surface quality of portions of the A-514 plate used in this weldment again, was poor. Because this unit was being used near salt water, the customer was concerned that we had used already corroded material (this was of course, not the case) and would only get worse in the salt air. This case is still pending and Manitowoc may have to ship the customer a replacement section. This is a serious situation in light of the fact that the section in question is 40' long and weighs 4.2 tons. In both cases the product, A514 alloy steel, was purchased from domestic producers. We have had instances where we were unable to use A-514 plate from domestic producers due to our inability to remove the heavy mill scale that can occur with the grades of A-514 they offer. As mentioned earlier the integrity of our entire product was being called into question in our customer's mind. This was, and remains, totally unacceptable. A decision was made to purchase and incorporate superior

quality imported alloy plate into our product. Prior to this all steel plate purchased by Manitowoc had been domestically produced. This decision was not made lightly as we had long relationships with the major U.S. producers of heavy alloy plate but was the result of the U.S. mills unwillingness to recognize market conditions for what they were i.e. surface quality and specialty products. When this issue was brought to the attention of domestic steel producers, the response was minimal at best. The U.S. mills have relied on the fact that their product was structurally sound (it is) and maintained a position that MANITOWOC CRANES had arbitrarily "raised the bar" regarding surface quality. This is patently untrue.

All manufacturers of construction, mining, and ag equipment are striving to achieve an "automotive type" finish on their products. The domestic mill's solution was to offer a "special rolled" product at a higher price, with limited availability. This was not acceptable. The decision to procure alloy plate from offshore mills was reaffirmed after visiting several mills in Europe and seeing first hand the superior surface quality of their commonly produced alloy products. European mills have been coming up with new "recipes" to broaden their range of product offerings. One example of this is the Grade S offered by SSAB and other offshore mills that offers a superior surface quality as compared to the grades offered by the domestic mills. Another product we purchase from a European producer, Voest-Alpine's Alform 700, is a thermo-mechanically rolled alloy plate that does not require the quenching and tempering operations that A514 requires to get the 100,000 psi minimum yield strength. This results in a product with a surface quality that is far superior to that available domestically. Voest-Alpine offers a much wider thickness range as compared to the domestic offerings and is available as discrete plate up to 120" in width which is something we require. As a matter of fact, after having recently returned from Voest-Alpine's mill, I visited a domestic mill and mentioned this product to the technical director of that mill and the response was "it can't be done". Interesting.

Manitowoc also employs a special, ultra high strength steel in some of our products in order to achieve the design structural strength. Specifically, this is a 160,000 psi minimum yield strength material ordered in 51' lengths, that is purchased from SSAB in Sweden and is not currently offered by any of the North American mills. MANITOWOC CRANES also purchases a large amount of 130,000 psi minimum yield strength steel from SSAB because of the differences in chemistry between their Grade S, which has minimal surface scale, and those grades offered by the domestic producers. In addition, the SSAB quenching and tempering line, which plays a large role in the end product surface quality, is far superior to anything in use in the U.S. MANITOWOC CRANES position in the marketplace is a result of designing technologically advanced products employing the latest technologies developed both internally and by our suppliers. All of this is a result of being responsive to market demands. MANITOWOC CRANES is the leading surviving U.S. based lattice-boom crawler crane manufacturer. We are already at a distinct disadvantage to our foreign competition due to currency exchange rates. Taking away our ability to procure the products we require or making them available only at a prohibitive cost would impact us severely in our ability to continue to compete both internationally and domestically. Offshore producers of alloy plate offer a wide range of

products that in many cases are in addition to what the domestic mills produce and this allows us to have access to materials that we require to satisfy our customers requirements.

MANITOWOC CRANES can ill afford to have its ability to compete in the marketplace restricted further at the request of a powerful lobbying group representing a single industry. Limiting our choices as to where and what we can procure will impact us severely with the loss of manufacturing jobs as the outcome. There is no doubt that the steel industry is in serious trouble and that we need a domestic steel industry. The question is how much of that trouble has been self-inflicted by just plain poor management. Just like the crane industry the steel industry is part of a global marketplace. Protecting the steel industry from this global market is not the answer. They must be more responsive to the marketplace or let the market weed out the inferior players. The U.S. Government has other tools available that would allow them to help the industry without negatively impacting the rest of the manufacturing sector.

The bottom line is if MANITOWOC CRANES is forced to pay a government imposed, artificially high price for the steel product it requires, it will be subjected to a deepening competitive disadvantage. This could jeopardize our ability to remain in business and would negatively impact U.S. jobs. The combination of disadvantageous exchange rates, and higher material costs imposed due to misguided government intervention could be fatal blows. Protecting one industry at the expense of another is not the answer.

Peter R. Burish
Sr. Purchasing Agent
Manitowoc Cranes, Inc.
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Fax 920-683-6209
E-Mail pburish@manitowoccranes.com

EXHIBIT 3



1000 Genesis Drive, Main St.
Superior, Wisconsin 54880
Te: (715) 395-5252 Fax: (715) 395-5255
Web Site: www.genesisequip.com
E-Mail: info@genesisequip.com

November 13, 2001

U.S. International Trade Commission
ATTN: **Ambassador Robert B. Zoellick**
U.S. Trade Representative
600-17th Street N.W.
Washington, D.C. 20508

Re: Certain Steel Products TA-201-73 (Final)

Dear Ambassador Zoellick:

I am writing this letter to you regarding the ITC's investigation of carbon steel plate.

Genesis Equipment & Manufacturing, Inc. produces specialized attachments that mount on hydraulic excavators used in the demolition and scrap industries, such as Shears, Grapples, Demopros, etc. To produce our equipment, we have important specifications both as to abrasion resistance and yield strength (130,000 psi). We purchase our steel plate from SSAB Oxelosund under the brand name "Hardox 130".

No U.S. mill can meet our specifications. We have tried for over twenty (20) years from companies such as USX and Lukens. These mills can make steel plate with lower yield strengths, such as 100,00 psi, but that is not sufficient for the equipment that we produce and sell.

Even when U.S. mills claim that they have the technical capability to produce to Genesis' specifications, these mills are unwilling to produce that plate because the market for such quality plate is too small to warrant such production.

Page 2
November 13, 2001

In summary, SSAB Oxelosund's plate should not be covered by any import relief. No mill in the United States can meet our specifications or our quantity needs. Restricting imports from SSAB Oxelosund will damage Genesis Equipment & Manufacturing, Inc. and its employees, but it will not help U.S. plate mills because this is not a product that they can produce.

Sincerely,

Kenneth R. LaBounty
President

EXHIBIT 4

November 7, 2001

Mr. James R. Simoes
Hunton & Williams
1900 K Street, N.W.
Washington, DC 20006

**Re: International Trade Commission/United States Trade Representative Section 201
Investigation of Certain Steel Products, Inv. No. TA-201-73**

Dear Mr. Simoes:

The A.J. Weller Corporation Weller is a manufacturer of custom machinery located in Shreveport, Louisiana. Weller is an important contributor to the Louisiana economy. I am writing this letter in regard to an investigation steel imports under Section 201 of the Trade Act currently being undertaken by the International Trade Commission and the United States Trade Representative. The International Trade Commission will soon be making recommendations to the President regarding the proper restrictions to impose against imports of steel products, and the Trade Representative is currently considering whether to exclude certain specialized products from the import relief that is ultimately imposed.

Weller purchases a wide range of steel products, and is a loyal purchaser of domestic steel. With respect to certain specialized steel plate products, however, Weller is required to source the products from overseas either because a comparable product is unavailable domestically or because the domestic product does not meet Weller's needs. Specifically, we are required to purchase abrasion resistant plate products from SSAB in Sweden because we are unable to purchase a suitable alternative domestically. As a downstream consumer of imported steel, the outcome of this investigation is of great importance to Weller. Because access to certain imports is vital to Weller's continued success, Weller is supporting the exclusion of these products from import relief in the Section 201 Investigation. Import restrictions against these products would cause great harm to Weller. We are in favor of fair trade, but when a product is not produced domestically at satisfactory quality levels, imports of the product should remain freely available, without restrictions, to domestic consumers to whom access to the product is necessary in their operations.

Weller is submitting a letter to the Trade Representative requesting the exclusion of the products discussed in this letter from Section 201 relief, and I am writing this letter in order to seek your considerable influence before the Trade Representative in support of these exclusions. I urge you to safeguard Louisiana jobs by joining our exclusion efforts.

Specifically, Weller supports the exclusion of abrasion resistant carbon and alloy plate products with Brinell hardness ratings ranging from 400 HB to 600 HB. Abrasion resistant plate with Brinell hardness greater than 500 HB is not produced domestically. Abrasion resistant plate with Brinell hardness ranging from 400 HB to 500 HB is produced domestically, and Weller purchases these products domestically from Oregon Steel Mills, Inc. and Lukens Steel Corporation. Although the domestic industry produces products with

these hardness ratings, domestic products are not always viable alternative for imported products. For example, because the domestic products are not as bendable and weldable as often required in Weller's operations, the domestic products are not compatible with all of Weller's applications. Due to these shortcomings in the domestic products, Weller is required to purchase a portion of its 400 HB – 500 HB plate requirements, at a premium price, from foreign companies that specialize in the production of these products, such as SSAB in Sweden. SSAB's HARDOX abrasion resistant products are critical to Weller's production of the highest quality machinery possible

The abrasion resistant plate that is produced by SSAB is superior to any other domestic or foreign product. Flatness tolerance, chemistry, weldability, formability, and the resistance to deformation of SSAB's AR plate is a paramount competitive advantage for our products. Without the availability of SSAB's AR plate we will lose our competitive advantage not only in the United States but in all the foreign markets in which we compete. Our customers will be forced to seek out foreign manufacturers with whom we compete who have the availability of SSAB's material. Simply stated, without SSAB plate we can not produce the quality we now have over our competition, and our business will be severely affected.

Domestic abrasion resistant plate products are used by Weller in applications such as simple liner plates, which require little welding or forming. Because of the product limitations noted above, however, domestic products are not suitable for many applications, including crushing equipment, complex fabrications, and severe impact areas. For this reason, Weller purchases abrasion resistant steel for use in these applications from SSAB. If we attempt to use domestic abrasion resistant steel for use in these complex applications, our manufacturing process will require substantially more labor, and the finished product will be less desirable to our customer because it will be of inferior quality and have a shorter useful life. Our customers will, as a result, begin to take their business elsewhere. Specifically, our customers will begin to purchase from our foreign competitors that have unrestricted access to high quality abrasion resistant plate products.

It should be also noted that our cost to purchase HARDOX material has always been higher than our cost for domestic products. Obviously, we are not going to pay more, unless our overall manufacturing costs and performance advantages justify the additional costs.

Weller has also found that the production of high quality abrasion resistant plate products has not been a focus of the domestic industry. Because of the relatively small market for these products, domestic producers have largely ignored this sector. This translates not only into a domestic product that is technologically inferior and of lower utility than a product purchased from a company that specializes in these products, such as SSAB, but also availability problems within the domestic industry. Over Weller's 15 year relationship with SSAB, SSAB has been significantly more reliable in availability than its domestic counterparts. Metric sizes, which are not readily available domestically, are required by some of our OEM manufacturers, and the availability of HARDOX in these sizes coupled with their quick response has enabled us to be more competitive and reduce inventory costs.

Weller recognizes the difficulties that the domestic steel industry is currently facing, but is troubled by the fact that the fate of domestic steel consumers has been largely ignored in this investigation. Weller is dedicated to purchasing steel from domestic producers when possible, and would like to source all of its steel domestically. Weller is forced, however, to purchase abrasion resistant plate with Brinell hardness ratings of 400 HB to 600 HB for use in certain applications from SSAB. Import relief against these products would cause these imports to be prohibitively expensive. Weller would then be required to purchase this

steel domestically, resulting in the injuries to Weller discussed above. Even in the absence of relief, companies such as Weller will continue to purchase large amounts of abrasion plate domestically because the domestic products are less expensive than imported alternatives. It is only when a product of superior quality is needed that we turn to imports. Accordingly, Weller has joined SSAB in requesting that abrasion resistant carbon and alloy plate with Brinell hardness ratings of 400 HB to 600 HB be excluded from relief.

We are concerned that in the efforts of the Commission and the Trade Representative to aid the domestic steel industry (efforts that we generally strongly support), they will take action that will injure, to the same extent that the steel companies have been injured, domestic industries that rely on steel imports unavailable domestically. HARDOX materials are widely specified by domestic and international engineering companies coupled with OEM (Original Equipment Manufacturers) throughout the world. This is a relatively small market niche, which we have successfully serviced. Restrictions of these particular materials would have the most adverse affect on our business and deny us the ability to utilize the most worldwide recognized and most advanced abrasion resistant material available. These products are not similar to commercial grades of plate products, and should not be treated as such. They are not produced domestically, and domestically produced products are not suitable alternatives (this lack of substitutability is proven by the premium we pay for HARDOX over domestic plate products). Simply put, our company needs continued access to HARDOX in order to continue to compete in our industry.

We respectfully request that you support our position before the Trade Representative. On behalf of the A.J. Weller Corporation and its employees, thank you for your consideration.

Sincerely,

Thomas J. Edwards
President

EXHIBIT 5

WESTECH

December 19, 2001

The Honorable Robert B. Zoellick
United States Trade Representative
600 17th Street, N.W.
Washington, D.C. 20508

Re: Section 201 Investigation - Carbon and Alloy Flat Products

Dear Ambassador Zoellick:

It is a great concern to the companies I represent that the United States Trade Commission is considering tariffs or quotas on plate material made by SSAB Oxelosund known as Hardox 450 Abrasion Resistant plate. This Abrasion Resistant plate material that WESTECH imports is due to its superior quality over the domestic Abrasion Resistant plate material. I would like to request exclusion on this material so that we may continue to manufacture high quality products.

It might surprise you that we actually spend more dollars per landed ton on the foreign Abrasion Resistant plate than we would if we purchased domestic Abrasion Resistant material of the same hardness range. My considerations of purchasing Abrasion Resistant material are based on quality and the ability to process the plate, cutting, forming, and welding.

WESTECH Inc. is a manufacturer of mining and construction equipment, primarily large mining truck beds used in hauling abrasive materials. Our customer base is worldwide as noted by our achievement of the Presidential "E" award for Excellence in Exporting. Our main competitors reside outside the United States. Our competitors also use SSAB Hardox 450 Abrasion Resistant plate material, sanctions or tariffs imposed on us would give them a significant cost advantage. This would result in our customers going to them for the products that we are currently manufacturing. We compete in a worldwide market. If restrictions are placed on Abrasion Resistant plate, it could cause our operations to close.

As an example we recently received an order for twelve large off-highway mining truck bodies in which half of the bodies main plates were made from SSAB Hardox

WESTERN TECHNOLOGY SERVICES INTERNATIONAL, INC.
TEL: 307-235-3339 FAX: 307-235-3306 P.O. Box 2874 Casper, WY 82602

12/19/2001

450 and the other six bodies are made with domestic Abrasion Resistant plate as requested by the customer. The cost of the material played a minor role as compared to the cost of the extra labor that was required to build the product from the domestic material. The cost of the SSAB Hardox 450 was HIGHER than the cost of the domestic plate but we had to spend more labor hours in welding the domestic plate. The extra labor hours are due to the preheating of the domestic material in order to weld the plate so they don't crack and fall apart. The SSAB Hardox 450 can be welded at room temperature up to a combined thickness of 1.5 inches while the domestic 450 Brinell hardness materials require us to preheat the plate up to 300 degree F for the same thickness.

As you can see the initial price is only one element in the decision to purchase a particular steel plate. I encourage the US Trade Commission to carefully consider splitting up the Carbon and Alloy plates with the Abrasion Resistant plates due to the fact that there are NO standards such as ASTM, AISI, AISC and SAE. Equivalents in chemistry and/or heat-treating process of this grade are not made anywhere. Each mill makes the material to its own specifications as it see fit for its targeted customers.

The high Abrasion Resistant plate materials that we are using are special plate grades that don't have a standard "recipe". It is made as a special proprietary plate, specific to each mill that manufactures it. With tariffs or quotas placed on Abrasion Resistant plates, we would be required to purchase inferior material that would jeopardize our products to perform safety and our company to remain in business.

Our usage for the SSAB Hardox 450 plate material for the year 1998 was 165 tons at a value of \$157,452.00. Our year 1999 was 301 tons at a value of \$285,347.00. Our year 2000 usage was 397 tons at a value of \$370,720.00. Usage for year 2001 is at 1067 tons at a value of \$946,429. Our projected annual usage for 2002 through 2003 is 2,250 tons at an estimated value of \$1,800,000.00. Our projected annual usage for 2004 through 2005 is 2,800 tons at an estimated value of \$2,240,000.00.

Sincerely,



Rick J. Reynolds
Operations Manager
WESTECH Inc.
Casper, WY